

Title: Electric Oud Burner Device for Non-Combustive Vaporization of Dry and PG/VG-Soaked Oud Chips Using Airflow-Driven Thermal Diffusion

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Field of Invention:

This disclosure relates to fragrance diffusion devices, specifically an electric oud burner that vaporizes dry and propylene glycol (PG)/vegetable glycerin (VG)-soaked oud (*Aquilaria* spp.) chips using an electric heating element and active airflow to produce clean, combustion-free room aroma.

Background:

Oud, derived from the resinous heartwood of *Aquilaria* species, is prized in perfumery and cultural rituals for its complex aroma, characterized by sesquiterpenes, chromones, and other volatile compounds. Traditional oud burners, such as charcoal-based mubakhars, combust oud at high temperatures (600–800°C), producing smoke, ash, and potential carcinogens (e.g., polycyclic aromatic hydrocarbons, PAHs), which degrade delicate floral notes and pose health risks. Existing electric burners rely on passive convection, heating dry oud chips or bakhoor to 200–450°C, often charring the material or limiting aroma diffusion. Liquid diffusers use PG or ethanol for oils, not solid chips, reducing authenticity. No known devices combine electric heating with active airflow to vaporize both dry and PG/VG-soaked oud chips, optimizing aroma release without combustion. This disclosure describes a novel device and method to address these limitations, offering a clean, efficient, and versatile oud vaporization system.

Summary of Invention:

The present invention provides a device and method for non-combustive vaporization of oud chips, using an electric heating element and active airflow to release aromatic compounds into the room. The device is compatible with both dry oud chips and chips soaked in PG or PG/VG mixtures, enhancing aroma intensity and duration. The method includes:

- Preparing oud chips (dry or soaked in PG/VG for 24–48 hours).
- Placing chips in a perforated tray or chamber.
- Heating the chips to 100–300°C using an electric element (e.g., ceramic coil).
- Directing airflow over/through the chips via a fan or air pump to vaporize aromatics without burning.
- Diffusing the vapor into the room for a clean aroma experience.

The electric heating element ensures precise temperature control (100–150°C for soaked chips, 150–250°C for dry chips), avoiding combustion. Active airflow enhances vapor diffusion, outperforming passive convection. The device is portable, safe, and suitable for home, commercial, or ritual use.

Detailed Description:

- **Step 1: Oud Chip Preparation**

High-quality oud chips (*Aquilaria* spp.) are shaved into 1–2 mm slivers to ensure uniform heating and vaporization.

- **Dry Chips:** Used as-is, sourced free of synthetic additives, with high resin content preferred for maximum sesquiterpene yield.
- **Soaked Chips:** Chips are soaked in food-grade PG or a PG/VG mixture (e.g., 80:20 PG:VG) at a 5:1 liquid-to-chip ratio (ml:g) for 24–48 hours in a sealed container at room temperature (20–25°C). Soaking extracts sesquiterpenes, chromones, and other volatiles, which PG/VG holds for sustained vaporization. Optional aromatics (e.g., frankincense, benzoin) may be added to the soak for customized scents.

- **Step 2: Device Configuration**

The device comprises:

- **Base Housing:** A stable, heat-resistant platform (e.g., ceramic, stainless steel) containing:
 - An electric heating element (ceramic coil or metal filament, 100–300°C).
 - A low-speed fan or air pump (50–200 RPM or 0.1–0.5 L/min airflow).
 - Power source (USB-rechargeable battery or plug-in, 5–12V).
- **Vaporization Chamber:** A cylindrical or conical chamber (5–10 cm height, 3–5 cm diameter) with:
 - A perforated tray (1–2 mm holes) to hold 5–10 g of oud chips.
 - Air inlets at the base and outlets at the top for airflow.
- **Control Unit:** Digital or analog controls for:
 - Temperature adjustment (100–300°C, $\pm 5^\circ\text{C}$ precision).
 - Fan speed (variable or on/off).
 - Auto shut-off (10–15 minutes to prevent overheating).
- **Safety Features:** Insulated housing, overheat protection, and a stable base to prevent tipping.

- **Step 3: Operation**

- Place 5–10 g of dry or PG/VG-soaked oud chips in the perforated tray.
- Set the heating element to 100–150°C for soaked chips or 150–250°C for dry chips, based on desired aroma intensity.
- Activate the fan or air pump to direct airflow over/through the chips, vaporizing PG/VG and oud volatiles without combustion.
- Aromatic vapor exits the chamber, diffusing into a 10x10 m room for 15–60 minutes, depending on chip type and airflow.
- The device auto-shuts off after 10–15 minutes to ensure safety.

- **Step 4: Maintenance**

Clean the tray with alcohol to remove PG/VG residue. Replace or recharge the battery as needed. Inspect the heating element periodically for wear.

- **Alternative Embodiment (High-Capacity Version)**

For commercial use (e.g., spas, hotels), the device scales to a larger chamber (10–15 cm height, 5–10 g chip capacity) and dual fans for broader diffusion. A touchscreen interface adjusts temperature and airflow in real-time, with presets for dry or soaked chips.

- **Advantages**

- **Enhanced Aroma:** PG/VG soaking increases volatile yield (e.g., agarospirol) vs. dry chips, and airflow ensures room-scale diffusion, outperforming convection-based burners.
- **Non-Combustive:** Electric heat (100–300°C) avoids wood combustion (600°C) and PG ignition (371°C), producing clean vapor.
- **Versatility:** Compatible with dry and soaked chips, with adjustable settings for tailored aromas.
- **Safety and Convenience:** Flame-free, portable, and user-friendly, with no charcoal mess or smoke.
- **Market Fit:** Targets premium fragrance markets, leveraging oud's luxury appeal.

Example:

A prototype device with a 5V ceramic heating element and 100 RPM fan was tested with 5 g of PG-soaked oud chips (80:20 PG:VG, soaked 48 hours). At 120°C, the device produced a rich, resinous aroma with floral notes, diffusing across a 10x10 m room for 30 minutes. Dry chips at 200°C yielded a woodier scent for 20 minutes. No smoke or charring was observed, unlike traditional charcoal burners.

Claims:

- A device for non-combustive vaporization of oud chips, comprising:
 - a. A base housing with an electric heating element configured to heat to 100–300°C;
 - b. A vaporization chamber with a perforated tray to hold dry or PG/VG-soaked oud chips;
 - c. A fan or air pump to direct airflow over/through the chips, vaporizing aromatic compounds;
 - d. A control unit for adjusting temperature and airflow;
 - e. A power source (battery or plug-in);wherein the device produces room aroma without combustion.
- The device of claim 1, wherein the oud chips are soaked in PG or PG/VG for 24–48 hours before vaporization.
- The device of claim 1, wherein the heating element is a ceramic coil or metal filament, maintaining $\pm 5^\circ\text{C}$ precision.
- The device of claim 1, wherein the fan operates at 50–200 RPM or the air pump at 0.1–0.5 L/min.
- A method for vaporizing oud chips, comprising:
 - a. Preparing dry or PG/VG-soaked oud chips;

- b. Placing the chips in a perforated tray;
- c. Heating the chips to 100–300°C using an electric heating element;
- d. Directing airflow over/through the chips to vaporize aromatics;
- e. Diffusing the vapor into a room without combustion.
- The method of claim 5, wherein the chips are soaked in a 5:1 PG/VG-to-chip ratio for 24–48 hours.
- The method of claim 5, wherein the temperature is 100–150°C for soaked chips and 150–250°C for dry chips.

Purpose of Disclosure:

This document establishes prior art for the described electric oud burner device and method. It may be developed into a commercial product, and patent protection is under consideration to secure exclusive rights in the premium fragrance market.

Note: This disclosure is a draft suitable for public archiving (e.g., Wayback Machine) or as a provisional patent basis. A formal patent application requires detailed drawings, claim refinement, and legal formatting (37 CFR 1.71–1.77). Consult a patent attorney to finalize.